Model MKF 1020 CO_2 | Dynamic climate chambers for rapid temperature changes with humidity control

The dynamic climate chambers in the MKF CO_2 series are designed for combined temperature and humidity tests under dynamic conditions. High alternating speeds and precise humidity control support standard-compliant, reproducible test runs. A comprehensive list of standard features ensures incredible value for money.

The MKF CO_2 series uses natural CO_2 as a refrigerant and expands the portfolio with a solution designed for combined climate testing.

BENEFITS

- More performance for your budget and long-term investment security
- Easy to integrate, intuitive to use, and flexible to network
- Reliable protection for samples, data, and processes
- Reproducible results and long-term operational stability



Model 1020



Model 1020

IMPORTANT FEATURES

- Temperature range: -48°C to +180°C
- Humidity range: 10% to 98% RH
- Humidity regulation with capacitive humidity sensor and steam humidification
- APT.line™ preheating chamber technology
- Cooling with R744, a natural CO_2 refrigerant
- Intuitive touchscreen controller with time-segment and real-time programming
- Ergonomically adjustable operating terminal
- Signal triangle with light-up status display
- Internal data logger, measured values can be read out in open format via USB
- BINDER Multi Management Software APT-COM™ basic edition
- Programmable condensation protection for samples
- Troubleshooting system with visual and acoustic alarms
- Stainless-steel inner chamber
- 1 stainless steel rack
- 2 access ports with silicone plugs, 80 mm, left and right
- Heated viewing window with LED interior lighting
- Class 2 independent adjustable temperature safety device (DIN 12880) with visual alarm
- 4 sturdy twin casters with brakes at the front
- Data interfaces: Ethernet, USB
- Adjustable ramp function
- Integrated line recorder
- Real-time clock
- Door heating to prevent condensation
- Integrated water-storage tank, 20 L
- 4 zero-voltage relay contacts

OPTIONAL EQUIPMENT

- APT-COM Multi Management Software – for managing, recording, and documenting unit parameters
- Racks – option of stainless steel racks, depending on test requirements
- Systems for water treatment and compressed air supply
- Services – wide range of services to ensure that the unit functions correctly

ORDERING INFORMATION

Interior volume [L]	Power supply - unit fuse	Plug*	Version	Model version	Art.-No.
Model MKF 1020 CO_2					
991	480 V 3~/N/PE 60 Hz -32,0 A	NEMA L22-30P	Standard	MKF1020CO2-480V	9020-0530
	400 V 3~/N/PE 50 Hz -32,0 A	CEE 32 / 6 H plug 5-pin	Standard	MKF1020O2-400V	9020-0528

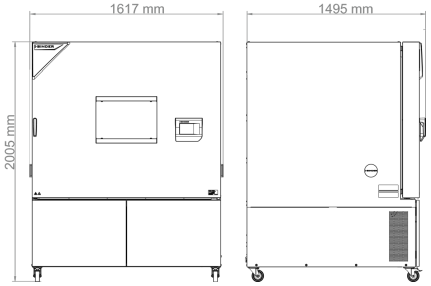
TECHNICAL DATA

Data		
Article Number	9020-0528	9020-0530
Designation	MKF1020O2-400V	MKF1020CO2-480V
Option model	Standard	Standard
Performance Data Temperature		
Temperature range	-48...180 °C	-48...180 °C
Temperature uniformity dependent on set value	0.1...1.0 ± K	0.1...1.0 ± K
Temperature fluctuation dependent on set value	0.1...0.2 ± K	0.1...0.2 ± K
Average heating-up rate according to IEC 60068-3-5 between -40°C and 180°C	6.2 K/min	6.2 K/min
Average cooling down time according to IEC 60068-3-5 between 180°C and -40°C	4.8 K/min	4.8 K/min
Cooling down time from 180°C to -40°C	70 min	70 min
Performance Data Climate		
Temperature range with humidity	10...95 °C	10...95 °C
Humidity range	10...98 % RH	10...98 % RH
Temperature fluctuation with humidity dependent on set value	0.1...1 ± K	0.1...1 ± K
Humidity fluctuation with humidity dependent on set value	2 ± % r.F.	2 ± % r.F.
Max. heat compensation at 25°C and 90% RH	1,400 W	1,400 W
Electrical data		
Rated Voltage	400 V	480 V
Power frequency	50 Hz	60 Hz
Nominal power	11,5 kW	11,5 kW
Unit fuse	32,0 A	32,0 A
Phase (Nominal voltage)	3~/N/PE	3~/N/PE
Dimensions and weights		
Interior volume	991 L	991 L
Net weight of the unit (empty)	570 kg	580 kg
Load per rack	40 kg	40 kg
Permitted load	200 kg	200 kg

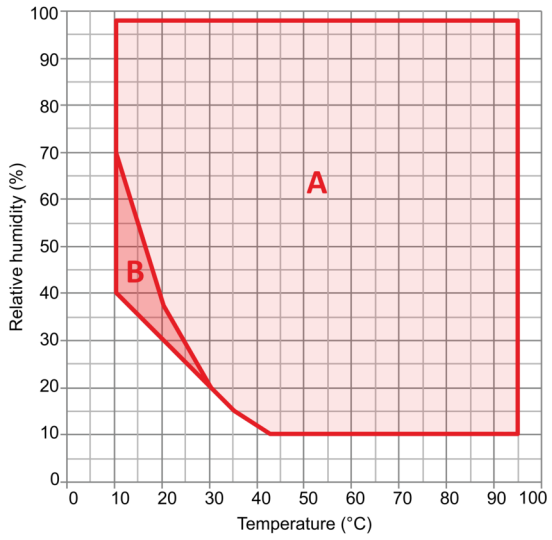
Wall clearance back	300 mm	300 mm
Wall clearance sidewise	200 mm	200 mm
Housing dimensions not incl. fittings and connections		
Width net	1,580 mm	1,580 mm
Height net	2,005 mm	2,005 mm
Depth net	1,480 mm	1,480 mm
Internal Dimensions		
Interior width	1,200 mm	1,200 mm
Interior height	1,020 mm	1,020 mm
Interior depth	810 mm	810 mm
Unit doors	1	1
Environment-specific data		
Sound-pressure level	60 dB(A)	60 dB(A)
Energy consumption at 25°C and 60% RH	3,000 Wh/h	3,000 Wh/h
Fixtures		
Number of shelves (std./max.)	1/11	1/11

All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C ±3 °C and a power supply voltage fluctuation of ±10 %. The temperature data is determined in accordance to BINDER factory standard following DIN 12880, observing the recommended wall clearances of 10 % of the height, width, and depth of the inner chamber. Technical data refers to 100 % fan speed. All indications are average values, typical for units produced in series. We reserve the right to change technical specifications at any time.

DIMENSIONS Incl. fittings and connections [mm]

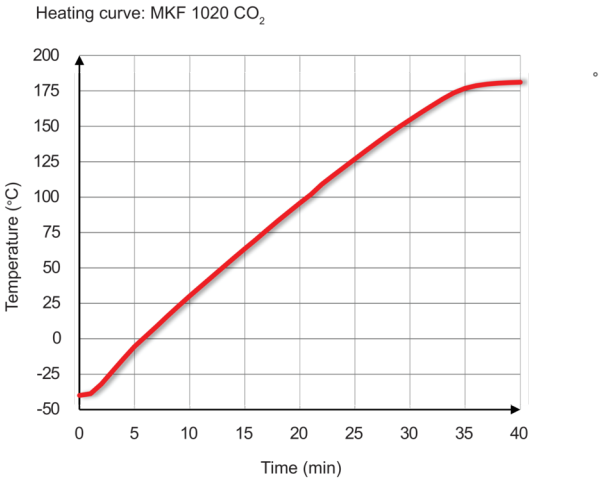


DIAGRAMS

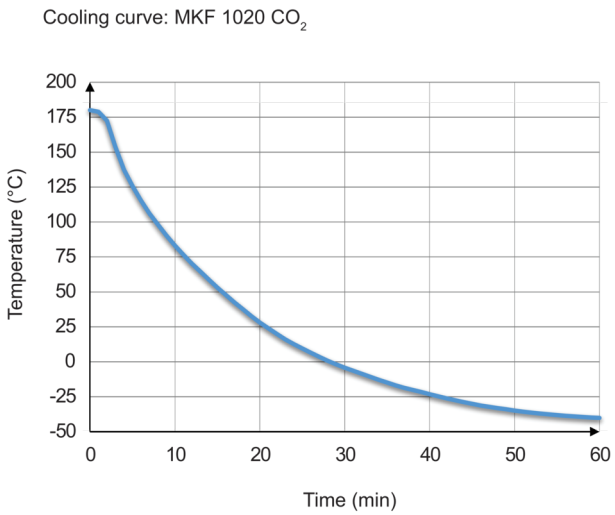


A: Standard Climate range
B: Time-limited operation (max. 24 hours)

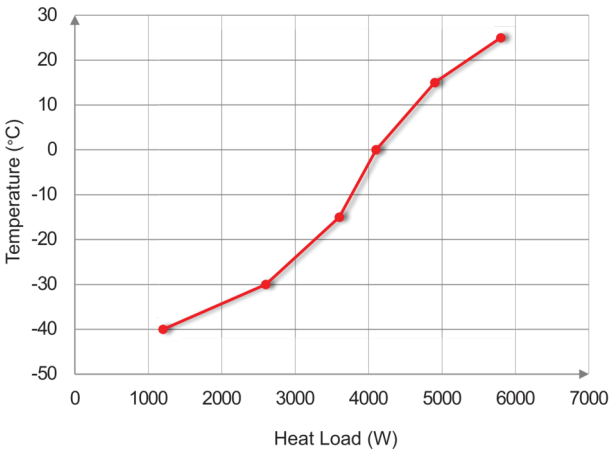
Climate chart



Heating up rate



Cooling down rate



Heat compensation chart

OPTIONS

Designation	Description	MKF CO_2 1020	*	Art.-No.
	left			
	30 mm	•	01	8012-2683
Access port with silicone plug	50 mm	•	01	8012-2685
	80 mm	•	01	8012-2687
	100 mm	•	01	8012-2690

Designation	Description	MKF CO_2 1020	*	Art.-No.
	125 mm	•	01	8012-2693
	right			
	30 mm	•	01	8012-2684
	50 mm	•	01	8012-2686
	80 mm	•	01	8012-2689
	100 mm	•	01	8012-2692
	125 mm	•	01	8012-2695
	top			
	80 mm	•	01	8012-2688
	100 mm	•	01	8012-2691
	125 mm	•	01	8012-2694
Analog output 4-20 mA	for temperature and humidity values (output not adjustable)	•	-	8012-2674
Calibration certificate, expanded	for temperature and humidity; for extending the measurement in center of chamber to include another test value	•	-	8012-2701
Calibration certificate, temperature	temperature measurement incl. certificate, 9 measuring points at specified temperature	•	-	8012-2698
	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	•	-	8012-2699
	temperature measurement incl. certificate and 27 measuring points at specified temperature	•	-	8012-2697
Calibration certificate, temperature and humidity	Measurement in center of chamber at 25°C / 60% RH or at specified test values	•	-	8012-2700
	temperature (according to DIN12880) and humidity measurement incl. certificate, 27 temperature measuring points and 1 humidity measuring point, at 25 °C / 60 % RH or at specified values	•	-	8012-2696
Door lock	lockable door handle	•	-	8012-2673
Pt 100 temperature sensor	additional flexible Pt 100, interior, for displaying the temperature on the unit display	•	-	8012-2705
RS 485 interface, 2-wire	Additional serial interface can be used parallel to Ethernet, for Multi Management Software APT-COM™	•	-	8012-2706
Water circuit	allows condensed water to be reused	•	-	8012-2709

ACCESSORIES

Designation	Description	MKF CO_2 1020	*	Art.-No.
APT-COM™ 4 GLP-Edition	for working under GLP-compliant conditions. Measured values are documented in a tamper-proof way in line with the requirements of FDA Regulation 21 CFR 11.			
	version 4, GLP edition	•	-	9053-0042
APT-COM™ 4 PROFESSIONAL-Edition	convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units.			
	version 4, PROFESSIONAL edition	•	-	9053-0040
BINDER PURE AQUA SERVICE	System for preparation or complete desalination of tap water, complete set containing PURE AQUA 300 single-use cartridge, measuring device, and all necessary connecting parts	•	-	8012-0759
BINDER PURE AQUA SERVICE, accessories	Single-use, replacement cartridge for BINDER PURE AQUA System	•	-	6011-0165
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	•	-	8012-2250
Qualification documents	IQ/OQ/PQ documents – supporting documents for validation performed by customers, according to customer requirements, PQ section added to qualification folder IQ/OQ; parameters: temperature and humidity values			
	Digital in PDF format	•	-	7057-0006
	Hard copy inside folder	•	-	7007-0006
	IQ/OQ documents – supporting documents for validation performed by customers, consisting of: IQ/OQ checklists incl. calibration guide and comprehensive unit documentation; parameters: temperature and humidity values			
	Digital in PDF format	•	-	7057-0002
	Hard copy inside folder	•	-	7007-0002
Rack	stainless steel	•	-	8012-2124
Rack, reinforced	stainless steel	•	-	8012-2105
RS 485 / RS 422 interface converter	RS 422 cable set and RS 485 / RS 422 interface converter for connection to 10-way plug distributor			
	115 V option model	•	-	8012-0599
	230 V option model	•	-	8012-0589
Shelf, perforated	Stainless steel	•	-	8012-2261

SERVICES

Designation	Description	*	Art.-No.
Calibration services			
Temperature and humidity calibration	Expansion –Temperature and humidity calibration with 1 measuring point in center of chamber with 1 specified pair of values, including certificate	05	DL30-0302

Designation	Description	*	Art.-No.
	Temperature and humidity calibration with 1 measuring point in center of chamber with 1 specified pair of values, including certificate	05	DL30-0330
Temperature and humidity measurement, 9-1 measuring points	Temperature measurement with 9 temperature measuring points and 1 humidity measuring point in center of chamber with a pair of values specified by the user, including certificate	05	DL30-0309
Temperature and humidity measurement, 18-1 measuring points	Temperature measurement with 18 temperature measuring points and 1 humidity measuring point in center of chamber with a pair of values specified by the user, including certificate	05	DL30-0318
Temperature and humidity measurement, 27-1 measuring points	Temperature measurement with 27 temperature measuring points and 1 humidity measuring point in center of chamber with a pair of values specified by the user, including certificate	05	DL30-0327
Temperature and humidity measurement according to DIN12880	Temperature measurement in accordance with DIN 12880 with 27 temperature measuring points and 1 humidity measuring point in center of chamber with a pair of values specified by the user, including certificate	05	DL30-0427
Installation services			
Unit commissioning	Connect the unit to the customer-side connections (electricity, water, wastewater, gas), basic functions check, brief operating instructions. (excl.: unpacking, setup, controller instructions, programming, installation work)	05	DL10-0180
Unit instructions	Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming	05	DL10-0560
Maintenance contracts			
BRONZE 3-year maintenance contract	Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts	05	DL20-0710
GOLD 3-year maintenance contract	Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts, testing of all key functions, replacement of wear parts, calibration of one test temperature specified by the user in the center of the usable space, including certificate	05	DL20-0935
SILVER 3-year maintenance contract	Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts, testing of all key functions, calibration of one test temperature specified by the user in the center of the usable space, without certificate	05	DL20-0835
Maintenance services			
Maintenance	One-off maintenance service in accordance with maintenance schedule. Visual inspection of mechanical and electrical components, testing of all key functions. Calibration of a test temperature specified by the user in center of usable space without certificate	05	DL20-0610
Validation services			
Execution of IQ/OQ	Execution of IQ/OQ in accordance with qualification folder	05	DL42-0300
Execution of IQ/OQ/PQ	Execution of IQ/OQ/PQ in accordance with qualification folder	05	DL44-0500
Warranty service			
1-year warranty extension	The warranty is extended by 1 year from the delivery date, wear parts are excluded	05	DL50-0040

NOTES

01 Condensation may occur in the area around the access port. Access ports may be placed in custom locations for an additional charge.

05 Quoted prices do not include travel costs. Please refer to the chapter on BINDER Service for travel costs for your region. Quoted prices for services performed in Switzerland do not include a country-specific added fee (available on request).

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